

Claims:

Claim 1-15 (cancelled)

Claim 16-27 (cancelled)

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28 (new). An Internet based wireless communication system, comprising:

one server means running on Internet,

a plurality of wireless Access Points (APs) with Internet connection and
providing wireless networking access,

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a plurality of Personal Mobile Access Device (PMAD) with wireless
networking capability for getting wireless Internet access via said AP,
and client operation function means corresponding with said serve
means,

Whereby the APs communicating with the server means via Internet,

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Wherein said PMAD is personal mobile communication device with user
and media interfaces, and wireless networking means to
communicate with said APs,Whereby the PMAD access Internet wirelessly through the AP and
communicate with the server means via Internet,

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Wherein the server means enables the PMADs to joint communication
over Internet connection with server means;Whereby the PMADs access Internet wirelessly through the APs and
joint the server means for communication among each other of the
PMADs,

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Whereby the server means enables, controls, and guarantees the
PMAD to PMAD communication over Internet without message loss,
andWhereby the PMADs communicating with each other via the server
means and Internet.

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29(new) The system of claim 28 wherein one of said PMAD can roam among the wireless access of said APs around Internet and communicate with said server means and other PMADs.

5 **30 (new).** An Internet based wireless communication system, comprising:
a Time Distributed Message Network (TDMN) including server means connecting to Internet and TDMN operation function means;
a plurality of wireless Access Points (APs) with Internet connection and providing wireless networking access;
10 a plurality of Personal Mobile Access Device (PMAD) with wireless networking capability for getting wireless Internet access via said AP, and client operation function means corresponding with said TDMN operation function;
Whereby the APs communicating with the TDMN via Internet,
15 Wherein said PMAD is personal mobile communication device with user and media interfaces, and wireless networking means to communicate with said APs,
Wherein the TDMN operation function means enables the PMADs to join the TDMN for communication over Internet connection;
20 Whereby the PMAD access Internet wirelessly through the AP and join the TDMN for communication among each other of the PMADs over Internet,
Whereby the TDMN and the APs providing communication among the PMADs over Internet, and
25 Whereby the TDMN enables, controls, and guarantees the PMAD to PMAD communication over Internet without message lost.

31(new) The system of claim 30 wherein said PMAD is performing time distributed two-way message communication by sending a complete

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source of voice, video and/or other file or message into a group of message units over Internet to the TDMN, and, said TDMN guarantees said a group of message units to be completely received at receiving PMAD:

5 whereby said TDMN stores the undelivered message units when there is interruption of Internet connection of receiving PAMD, and whereby said TDMN continues delivering said undelivered message when the interrupted communication of said receiving PMAD to said TDMN recovers.

10 32(new) The system of claim 30 wherein said TDMN manages the communication of said PMADs with different quality of service level.

33(new) The system of claim 30 wherein said TDMN has server means forming three-level hierarchical domain system for managing communication, comprising:

15 a host domain, a control domain and an access domain, wherein access domain is the bottom level of said hierarchical domain system, said access domain comprising a plurality of Access Server means and one Control Server means managing said Access Server means,

20 wherein control domain is the second level of said hierarchical domain system, said control domain comprising a plurality of said Control Server means and one Node Server means managing said Control Server means, and

25 wherein host domain is the core of said TDMN, comprising a plurality of said Node Server means and one Host Server means managing said Node Server means.

34 (new) The system of claim 30, wherein said a plurality of PMADs can perform group communication.

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35(new) The system of claim 30 wherein one of said PMAD can roam among the wireless access of said APs around Internet and communicate with said server means and other PMADs.

- 5 **36 (new).** An Internet based wireless communication system, comprising:
- a Time Distributed Message Network (TDMN) including server means connecting to Internet and TDMN operation function means;
 - a plurality of wireless Access Points (APs) with Internet connection and providing wireless networking access ,
 - 10 a plurality of Personal Mobile Access Device (PMAD) with wireless networking capability for getting wireless Internet access via said AP, and client operation function means corresponding with said TDMN operation function;
 - a time distributed message process function means for package source
 - 15 data into multiple time distributed message units (TDMU) to communicate over Internet
 - Whereby the APs communicating with the TDMN via Internet,
 - Wherein said PMAD is personal mobile communication device with user and media interfaces, and wireless networking means to
 - 20 communicate with said APs,
 - Wherein the TDMN operation function means enables the PMADs to join the TDMN for communication over Internet connection;
 - wherein said TDMU is a base communication message unit of a communication protocol means constructed on top of TCP/IP protocol
 - 25 and Internet,
 - Whereby the PMAD accesses Internet wirelessly through the AP and join the TDMN for communication among each other of the PMADs over Internet,

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Whereby the TDMN and the APs providing communication among the PMADs over Internet connection

Whereby the TDMN enables, controls, and guarantees the PMAD to PMAD communication over Internet without message loss, and

5 Whereby PMAD doing message communication via Internet and TDMN with TDMU means.

37(new), The system of claim 36 wherein said PMAD comprising:

means to convert data resource to be transferred in to TDMU,

means to convert the received TDMU into original data format, and

10 means to control the communication with TDMN and other PMAD of claim 36.

38(new), The system of claim 36 wherein said TDMU is a base

communication message unit of a communication protocol means

constructed on top of TCP/IP protocol and Internet to overcome

15 information communication loss and/or low quality due to unstable Internet connection:

wherein a original message is packaged into a group of TDMUs be sent over Internet,

wherein a complete original message is able to be recovered as long

20 as its complete belonging group of TDMUs is complete received, and

wherein TDMU set (a group of TDMUs) communication can be interrupted and resumed.

39(new) The system of claim 36 whereby said PMADs package source

25 data of voice, video, other file and message into a group of TDMUs send across Internet via the TDMN for delivering to receiving PMAD, and, said TDMN guarantees said a group of TDMUs to be completely received at receiving PMAD:

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whereby said TDMN stores the undelivered TDMUs when there is interruption of Internet connection of receiving PAMD, and whereby said TDMN continues to deliver said undelivered TDMUs when the interrupted communication of said receiving PMAD to said TDMN recovers.

whereby the transmitting and receiving of said message units is controlled by the operation means of TDMN with time-distributed feature of store and change the speed of communication to overcome the Internet connection unstable and interruption during the communication of sending and receiving PMADs

40(new) The system of claim 36 wherein said TDMN manages the communication of said PMADs with different quality of service level.

41(new) The system of claim 36 wherein said TDMN has server means forming three level hierarchical domain system for managing communication, comprising:

a host domain, a control domain and a access domain, wherein access domain is the bottom level of said hierarchical domain system, said access domain comprising a plurality of Access Server means and one Control Server means managing said Access Server means,

wherein control domain is the second level of said hierarchical domain system, said control domain comprising a plurality of said Control Server means and one Node Server means managing said Control Server means, and

wherein host domain is the core of said TDMN comprising a plurality of said Node Server means and one Host Server means managing said Node Server means.

42 (new). The system of claim 36, wherein a plurality of said PMADs can perform group communication.

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43(new) The system of claim 36 wherein one of said PMAD can roam among the wireless access of said APs around Internet and communicate with said server means and other PMADs.

5 **44 (new).** Method of time distributed two-way mobile message communication over Internet according to claim 30 comprising:
operating TDMN of claim 30, wherein said TDMN operation means
controlling and ensuring message exchange among said PMADs
of claim 30,
10 connecting said APs of claim 30 to Internet and providing wireless Internet access for said PMADs,
having first of said a plurality of PMADs networking wirelessly to one of a plurality APs of claim 30 to establish Internet connection and then join said TDMN via Internet,
15 having second of said a plurality of PMADs networking wirelessly to one of said a plurality of APs to establish Internet connection and then join said TDMN via Internet,
establishing communication between said first and second PMAD via said TDMN,
20 communicating messages between said first and second PMAD via Internet and said TDMN,
communicating messages among said a plurality of PMADs of claim 30 via Internet and said TDMN,
storing undelivered message in the TDMN when receiving PMAD
25 having Internet connection interruptions, and
continually delivering stored message to receiving PMAD when said receiving PMAD recovers Internet connection.

45(new) The method of claim 44, whereby TDMN establishing two virtual links (virtual control and security data link, virtual communication data

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link) to connect the sending and receiving among PMADs and said TDMN over Internet.

46 (new). The method of claim 44 wherein a plurality of said PMADs joining said operating TDMN via Internet performing group communication among each other.

47 (new). The method of claim 44 wherein said PMADs roaming among said a plurality of APs with wireless connection around the Internet for joining said operating TDMN for communication among each other of said PMADs

48(new) A method of internet based time-distributed two-way communication according to claim 36, comprising:
operating TDMN of claim 36, wherein said TDMN operation means control and ensure the message communication among PMADs control the access of a plurality of PMADs of claim 36, connecting said APs of claim 36 to Internet and providing wireless Internet access,
having said a plurality of PMADs establishing wireless Internet connection to a plurality APs of claim 36 and joining said TDMN via Internet,
packaging an original voice, video, other file or message into a group of TDMUs in sending PMAD,
transmitting said a group of TDMUs to receiving PMAD via Internet and TDMN,
storing undelivered message in the TDMN and ensuring complete message received by receiving PMAD to overcome Internet speed unstable and interruptions, and
unpacking said a group of TDMUs to original format at receiving PMAD.